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UTILITY SERIAL NUMBER				PATENT DATE				PATENT NUMBER			
SERIAL NUMBER 08/869,048		FILING DATE 06/04/97		CLASS 482		SUBCLASS 142		GROUP ART UNIT 3764		EXAMINER Mulcahy	
APPLICANTS JONATHAN H. MONTI, PROVIDENCE, RI. **CONTINUING DATA***** VERIFIED PROVISIONAL APPLICATION NO. 60/019,378 06/05/96 VERIFIED PROVISIONAL APPLICATION NO. 60/036,861 02/03/97 <i>me</i> <b>ABANDONED</b> **FOREIGN/PCT APPLICATIONS***** VERIFIED <i>me</i> FOREIGN FILING LICENSE GRANTED 10/28/97 ***** SMALL ENTITY *****											
Foreign priority claimed 35 USC 119 conditions met		<input type="checkbox"/> yes <input checked="" type="checkbox"/> no		AS FILED		STATE OR COUNTRY		SHEETS DRWGS.		TOTAL CLAIMS	
Verified and Acknowledged		Examiner's Initials		→		RI		13		12	
INDEP. CLAIMS		FILING FEE RECEIVED		ATTORNEY'S DOCKET NO.		2		\$385.00			
ADDRESS CRISTINA M OFFENBERG 494 BROADWAY NEWPORT RI 02840											
TITLE DEVICES AND METHOD FOR EXERCISE AND REHABILITATION											
U.S. DEPT. OF COMM./ PAT. & TM—PTO-436L (Rev.12)											
PARTS OF APPLICATION FILED SEPARATELY Applications Examiner NOTICE OF ALLOWANCE MAILED CLAIMS ALLOWED Total Claims Print Claim Assistant Examiner ISSUE FEE Amount Due Date Paid DRAWING Sheets Drwg. Figs. Drwg. Print Fig. Label Area Primary Examiner ISSUE BATCH NUMBER PREPARED FOR ISSUE WARNING: The information disclosed herein may be restricted. Unauthorized disclosure may be prohibited by the United States Code Title 35, Sections 122, 181 and 368. Possession outside the U.S. Patent & Trademark Office is restricted to authorized employees and contractors only.											

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06/04/97

## PATENT APPLICATION



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APPROVED FOR LICENSE ☒

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## CONTENTS

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ABANDONED

D 1. Application Prints papers.2. Res/EI3. Election4. Req 1315. Ext of time(1)6. Amend A & sub spec7. Amend B8. Amend C9. Request for access10. Request for access

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POSITION	ID NO.	DATE
CLASSIFIER	48	8/6/97
EXAMINER	65904	10/27/97
TYPIST	↓	10/28/97
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CORPS CORR.		
SPEC. HAND		
FILE MAINT.		
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## INDEX OF CLAIMS

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## SYMBOLS

✓ ..... Rejected  
 = ..... Allowed  
 - (Through numeral) ..... Canceled  
 + ..... Restricted  
 N ..... Non-elected  
 I ..... Interference  
 A ..... Appeal  
 O ..... Objected

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SEARCHED			
Class	Sub.	Date	Exmr.
482	93-95, 97, 98, 100, 133-137, 142, 901, 908	9/8/98	<i>me</i>
D21	673, 675		
update & #02	20 above 07, 145	4/22/99	<i>jm.</i>

INTERFERENCE SEARCHED			
Class	Sub.	Date	Exmr.

SEARCH NOTES		
	Date	Exmr.

**Patent Application of  
Jonathan H. Monti  
for  
Device and Method for Exercise and Rehabilitation**

**Background - Cross-references to Related Applications**

This invention refers to the invention disclosed in the provisional application of Jonathan H. Monti for an Exercise and Rehabilitation Device, Serial No. 60/19,378 filed June 5, 1996 and the provisional application of Jonathan H. Monti for an Assisted Push-Up Exercise Device, Serial No. 60/036,861 filed February 3, 1997.

**Background - Field of Invention**

This invention relates to simulated aquatic exercise without water and body weight resistant exercises which do not require scientifically conceived devices to perform.

**Background - Description of Prior Art and Present Invention**

The prior art in this field mainly consists of exercises capable of being performed by most people on their own without the aid of a machine, for example, sit ups, push ups, back extensions, hip extensions and lower abdominal flexion. These exercises are performed on the ground or on a simple apparatus. People who are obese, under conditioned, or injured need some level of muscle strength to perform these exercises since resistance is imparted on the body according to the natural "real world" environment.

Known types of torso rehabilitation and exercise machines and apparatuses exist which are prior art to this invention and include isometric, isotonic or isokinetic and other "special cases".

Isometric exercise is done without any joint motion taking place, for example, placing one's hand against an immovable object or holding the torso parallel to the ground while in a prone position, such as seen in Sorensens Test. Strength can be improved but only in the range of motion in which it is being acted upon. Since only one position and one angle can be used at one time, this becomes a time consuming approach if one tried to rehabilitate or exercise throughout all points in the range of motion. This cannot be considered a functional exercise since the torso rarely moves against an immovable object. It moves naturally according to its attraction to the earth by gravity.

Isotonic exercises are done against a movable resisting force. The resisting force is usually free weights, or it can be the weight of the persons own body. This is the most common method of exercise, as it is relatively inexpensive and readily available. Some isotonic modes of rehabilitation and exercise of the torso and postural musculature, the lower back in particular, are trunk extension, semi-functional movements such as rowing, and other free weight movements that require some movement in the lower back. Sit ups, push ups, and trunk extensions in a horizontal plane are also considered body weight resistance exercises.

Some isotonic exercise machines and apparatus in particular are the selectorized back extension machines such as the Nautilus™ cam and weight stack resistance model. A person functions in this machine by sitting on a separate pad also. The person starts in a seated pike position, with their chest almost on their knees, and extends their back so to straighten thier body. Another form of trunk extension is the body weight resisted application. In this form, a person lays in a prone position with their hips on a pad and their feet fixed under a roller. Their trunk is extended with no support, making the hamstring, gluteal, and paraspinal muscles the stabilizers if a person was to hold themselves in a position parallel to the ground. To make this exercise functional one guides their torso into a perpendicular position. This imparts an eccentric contraction on the hamstrings and the lower back. In order to restore the body to a parallel position one must use the hamstrings as prime movers, imparting a concentric contraction lifting the torso up completing a repetition through a full range of motion. When body weight resistance is not enough, people may hold a plate on their chest or put a bar behind their head creating additional weight as resistance.

There is another form of a back extension apparatus on the market namely the glute-ham apparatus. The overall structure of this apparatus is very similar to a regular trunk extension apparatus although the foot assembly can be moved on a track, so that a person can do the same exercise with their legs in a angled position as opposed to straight. This position imparts an intense isolated contraction in the hamstring, gluteal and hip area.

Hip extensions, a difficult exercise to perform, have recently gained popularity. To perform a hip extension exercise, a person need only to reverse the body on a trunk extension apparatus. Instead of the torso hanging over at the hips, the person's legs hang over at the hips. This exercise is rarely performed because of its difficulty. Lastly, there is a machine on the market that provides a pulling resistance during this exercise, however it is usually only used by power lifters who want to really strengthen their lower backs. The disadvantages of these isotonic exercise apparatuses are that their mode of use requires the exerciser to put their feet in a strap which contacts the user at the Achilles tendon. This may cause discomfort and it restricts placement of the feet for performing the exercise. Another flaw in this design is that the pivot point is not in line with the hinge point of the body, which is at the center of gravity.

Flexion exercise, such as sit ups, leg raises, and knee raise, enhance the integrity of the abdomen making for a stronger postural base. There are many varieties of exercising this area and to cover all of them will be overbearing and not necessary to describe for the scope of this invention.

Isokinetic exercise or rehabilitation involves a constant speed and a variable resistance. There are many hydraulic (for example Orthotron™ by Cybex™), electromechanical (for example Cybex™ by Cybex™ division of Lumex™) and pneumatic (for example Kieser™) isokinetic units on the market. The only types of exercise subject to the prior art of this invention that can be done on these types of machine is the seated or standing trunk extension, backward and flexion forward. Functional, comprehensive, body weight resisted exercises could not have been done isokinetically until now. Isokinetic exercise was previously used mainly for single joint exercises such as leg extension, leg curl, bicep curl, and tricep extension.

Included in the classification of "special cases" are the wall pulley, frictional and elastic resistance exercise devices and such exercises as the medicine ball exercises. These exercises impart resistance on the torso and the back as one moves through a range of motion. There have been inexpensive models of seated trunk extension on the market. These units have been known to use rubber bands, or torsion disks to provide the resistance. An example of this type of machine would be The Ab and Back Plus™, by Body By Jake™. The disadvantage of these known exercise routines are that they provide a human conceived way to impart resistance on the body. For example, if a person sits in a chair and moves his/her torso back and forth, then they would not experience any resistive force in either direction. Therefore, the resistance that is provided is scientist conceived and is unnatural. Another point is that a compressive force is imparted on the spine which can be considered a contraindication in some cases.

Despite the availability of the above devices and apparatuses, there remains a need for a device which accomplishes the advantages of the known devices but yet eliminates the drawbacks and disadvantages. Overall, the disadvantages of the prior art in the field of this invention are that they provide resistance to the body using the gravity of another structure or a scientifically conceived force or mechanism to exercise the body. One cannot do these exercises without machines because you would not have any resistance created by acting out the motions or mimicking the motions of the machine alone. Additionally, the prior art machines do not provide a mode of quantitatively measuring progress.

These disadvantages are overcome by the present invention devices that are very simplistic yet yield many different, safe, comprehensive, quantitative, realistic, and measurable benefits. The exercises performed during the use of these devices of the present invention can be done without the apparatus and still impart resistive force. For example, one can do a push up on the floor and the natural pull of gravity on the body is a resistive force on the muscles. The purpose of the present invention is to either reduce or increase the natural gravity resistive force on the body to make the exercise either easier or more difficult, respectively. The devices are designed with a counter balance lever arm which creates a buoyancy effect during exercise. At one end of one arm of the



lever arm there is a weight prong. The user places weights on this prong to counter balance his/her own body weight. The lever arm's pivot point is located at the center of gravity of the user thereby creating a decrease in the natural pull of gravity on the body during exercise. When the first and second arm of the lever arm are completely opposed (at a 180 degree angle), the user gets assistance through the full range of motion. As the angle of the arms is decreased from 180 degrees, the assistance force is experience through less of the range of motion and when the arms are complimentary to each other then no assistance is provided. When the two arms of the lever arm are both radiating in the same direction from the central pivot point, being complimentary to each other, the devices increase the natural pull of gravity on the body. The user will not get assistance because there is no counter balance to his/her body weight but instead will have increased resistance to his/her own body weight.

Mechanically the present invention functions much like the above-outlined exercises but it provides assistance and guidance to all the exercises, including others that would be impossible to do without enormous strength. This assistance is in the form of a counter balance lever arm. The lever arm provides assistance to the torso or legs as the exercises are being performed. The counter balance lever arm can also take the form of a cam and weight stack. The counter balance lever arm provides a mode of leverage to provide assistive force to an exerciser as they move through a range of motion. The devices assist a person as they perform an exercise in a prone position and decrease the natural resistance of gravity's pull on the body. For many people, gravity's pull on the body is too great to allow a them to perform an exercise. The devices of this invention decrease gravity's pull by counterbalancing the weight of a person as they go through a range of motion. This mode of leverage is a simple counterbalance with either an arm and weight assembly or a cam and weight stack assembly. Additionally, the devices can be used by conditioned persons for increased resistance of gravity's pull on the body by not using the lever arm as a counter balance. The exerciser places the weight on the weight prong of the lever arm while the two arms of the lever arm are radiating from the pivot point in the same direction thereby creating an increased resistance.

Although the general concept of a lever arm has been utilized in exercise devices in the prior art, the lever arm of the present invention is different because it is a counter balance and it is placed at the center of gravity of the exerciser. This is accomplished by having two arms of the lever arm that are telescopic and slide in and out to allow for both arms to have the same radius or moment arm or having one arm that provides the moment arm as in the sit up and push up device. This is important so that the amount of weight that is being used is the amount of force that is being imposed whether it be for assistance or resistance.

The known advantages of the devices of the present invention include the counter balance lever arm; the biomechanical design of the lever arm's pivot point at the hinge point, namely the center of gravity of the body.

The following exercises can be performed with the devices of the present invention: 1) back extensions; 2) hip extensions 3) push ups 4) sit ups 5) lower abdominal flexion.

Advantages of the trunk extension machine are that because of the counterbalance buoyancy effect the hamstrings and glutes are no longer prime movers allowing for a very intense contraction in the lumbar spine. The hamstring muscles become semi-prime movers and share the responsibility with the para spinal muscles thereby isolating the lower back muscles during exercise. Also the counterbalance weight allows the exerciser to twist at the top of the range of motion allowing for targeting one paraspinal muscle. Unlike prior art machines, the present invention devices provide a mode of measuring progress. For example, if a person begins working out at 80% assistance, and in two weeks is now only using 10% assistance, there is imperial evidence of progress which is quantitatively measured.

Our most natural form of resistive exercise is the push up. This exercise develops strength and muscle tone in the whole upper body. Also it develops stabilizing endurance in the spinal and abdominal musculature. Other ways of developing strength in the chest and upper body are widely known and used, for example, the bench press. This exercise can be duplicated in many different ways. Whether the angle the exercise is performed or the mechanism that provides the force it is still done by abducting the humerus from the torso by bending at the elbow and then adducting the arm

by contracting the muscles of the chest. Some forms of selectorized or lever arm bench press machines have been designed. The disadvantages of this prior art is that these machines move in one plane of motion. This is unlike the natural motion that is provided by a push up where the body articulates about the shoulders and not only in one plane of motion. Another disadvantage of these machines are that the seats are adjustable which make the contact points and the end of the movement difficult for different body sizes. The case here is that when one changes from one machine to the next the seat is almost never changed making so a shorter person is putting very damaging stress on their shoulders as a result.

The advantages of the present invention are that the body moves freely in a prone position according the gravity as opposed to being fixed in a supine position and letting the barbell or other said force production mechanism delineate the movement about the shoulder which in most cases may cause shoulder impingement. Another advantage of the present invention is that a person can perform push ups with their hands out at a two and ten o'clock positions. This would be almost impossible to do without this invention. While performing the exercise in this fashion, the exerciser exercises the rotator cuff because the shoulder blade is adducted and then abducted. The present invention allows for this exercise due to the assistance provided and the space available from the ground.

The sit up is a well known but widely misused mode of exercising the abdominal. Many devices have been conceived and accepted by the consuming public. These devices could only be used by very coordinated or strong individuals. Some examples of the devices in existence are the Ab Roller Plus™, the AB Works™ by Nordic Track™, the AB Bench™ by Icarian™, exercises from a wall pulley device, and many forms of selectorized machines. These devices allow the exerciser to push or pull with their arms limiting the effect of the abdominals. This pulling and pushing would also be considered an unnatural movement of the body. The selectorized machines usually cause the exerciser to crunch down in an unnatural position utilizing the hip flexors and due to their design the body is forced to jackknife at the hip joint as opposed to curling along the spine

(which is the movement of the present invention). Also most of the abdominal apparatuses designed require the exerciser to hook their feet while performing the exercise.

The present invention does not require the exerciser to hook their feet and thereby guarantees that the abdominals are being used to perform the exercise much like if a person performed the exercise on the floor without a machine or apparatus. The present invention simply mimics the natural movements of the body and provides an "assistive" force to the back of the exerciser's torso thereby decreasing the pull of gravity on the body. This allows the exerciser to move strictly and contract the abdominals with self-regulated force. For example, one may perform five repetitions on the subject invention while really forcefully contracting the abdominals. During the same set, the exerciser can reduce the amount of force provided during the contractions. This would be very difficult to do with the other devices. Lastly, the manner in which the present invention allows a person to do the exercise decreases the pull on the neck as is caused when doing a sit up on the ground. Another advantage of the present invention sit up machine is that the abdominals have to contract eccentrically in the second half of the movement because the body does not return to the ground in an exhaustive manner. Such that is noticed many times when witnessing someone becoming fatigued as they perform sit ups.

Lower abdominal flexion is almost always done wrong simply because not many people have the strength to do it correctly. When performing such an exercise the exerciser should raise or tilt his or her hips forward and upwards at the end of the movements. However, because of the weight of a persons legs and the strength required to move the hips in the aforementioned manner an exerciser could not perform this exercise correctly or with the most benefit, until now. The present invention allows the participant to lift his or her legs with little or no effort, and allows them to tilt their pelvis and contract the abdominals. Therefore, performing the exercise correctly.

The reason why no one has thought of the solution disclosed in the present invention before is because of its simplicity and the basic principles of the body's attraction to the earth by gravity. The prior art apparatus' have made exercising more complex and have subsequently attempted to improve upon these complex machines and thereby have overlooked a more simple and natural way



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

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SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
08/869,048	06/04/97	MONTI	J

CRISTINA M. OFFENBERG  
494 BROADWAY  
NEWPORT RI 02840

QM41/0429

EXAMINER	
MULCAHY, J	
ART UNIT	PAPER NUMBER
3764	#7

DATE MAILED: 04/29/99

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

**Office Action Summary**

Application No. <u>08/062090</u>	Applicant(s) <u>MONTE</u>
Examiner <u>MVLCAHY, J.</u>	Group Art Unit <u>3764</u>

---The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address---

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status**

- ☒ Responsive to communication(s) filed on 1/11/09.
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

**Disposition of Claims**

- ☒ Claim(s) 13-37 is/are pending in the application.
- Of the above claim(s) 14-17, 19, 21-31, 34-37 is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 13, 18, 20, 32 & 33 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

**Application Papers**

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119 (a)-(d)**

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.
- ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

\*Certified copies not received: \_\_\_\_\_.

**Attachment(s)**

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

**Office Action Summary**

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*Examiner*

1. Note that the Examiner and Art Unit assigned to this application have been changed.

*Response to Amendment*

2. The substitute specification filed January 11, 1999, has not been entered because it does not conform to 37 CFR 1.125(b) because it was not accompanied by a statement that it contains no new matter or a marked up copy of the original specification showing the changes made in the substitute.

Accordingly, the objections to the specification set forth in paragraph 6 of the previous Office action (Paper No. 4) are repeated.

3. The numbering of claims is not accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 20-44 have been renumbered 13-37.

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*Election/Restriction*

4. Claims 14-17, 19, 21-31 and 34-37 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b) as being drawn to a non-elected species. Election was made **without** traverse in Paper No. 3.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18 and 20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The recitations: "said guide arm having a hub, having a bore that is journaled on one end of said shaft and fixed there by a role pin that is press fit in a hole in said hub that is lined up with a hole in said shaft to produce a solid unit" and "a second hub also having a bore in which bushings are press fit to serve as a bearing to provide a rotational relationship between said shaft and a weight arm" are new matter.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:



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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 18, 20, 32 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. As to claims 18 and 20: recitations regarding how the rotatable relationship is produced are drawn to a method of using the claimed device, which is improper in an apparatus claim. See Ex parte Lyell, 17 USPQ2d 1548 (BdPatApp & Inter 1990). In action on the merits, such recitations were not given patentable weight. *Id.*

b. As to claim 20: "said adjustable angle guide arm and weight arm unit" (line 2) lacks antecedent.

c. As to claim 32: "said pivotal reference part" (line 14) lacks strict positive antecedent in the previous recitation, "a pivotable reference part" (line 11). Further, recitation that "said anchored and supported part of said body *sometimes may* provide combination movements with said guided part of said body" is ambiguous in that it is unclear whether such movement is to be a required part of the method.

d. Claim 33 depends from claim 32 and is likewise indefinite.

***Claim Rejections - 35 USC § 102***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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8. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Noland et al. (2,855,199) which shows:

As to claim 13: an exercise and rehabilitation device for body weight resistive exercises comprising: a base 11; a plurality of vertical supports 13 attached to the base; one or more body supports 16 attached to one or more of the vertical supports; a bi-directional torque producing mechanism 12 providing assistance or resistance having a guide arm 42 pivotally mounted to one or more of said vertical supports; and a force production mechanism 43 connected to said bi-directional torque producing mechanism.

9. Claim 32 is rejected under 35 U.S.C. 102(b) as being anticipated by McLaughlin et al. (4,405,128) which shows:

As to claim 32: a method for body weight resistive exercising and rehabilitating comprising the steps of: providing a base 12; providing a plurality of vertical supports 14, 15, 28 attached to said base; providing one or more body supports 18 attached to one or more vertical supports; providing a bi-directional torque producing mechanism having a guide arm 31 pivotally mounted to one said vertical support 28; providing a force production mechanism 45 connected to said bi-directional torque producing mechanism; positioning said body of a user in a prone, supine, inclined or vertical position (Figs. 2 and 4-6) on said body support wherein one part (the torso) of said body is freely movable, a second part (the hip) of said body is a pivotable reference part and a third part (the legs) of said body is anchored 47 and supported 20; wherein the movable

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part of said body is acted upon by gravity and guided through its range of movements by said guide arm; wherein said pivotal reference part of said body consists of the middle area of a person between the rib cage and the knees (Figs. 4-6); and wherein said anchored and supported part of said body sometimes may provide combination movements with said guided part of said body.

***Claim Rejections - 35 USC § 103***

10. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noland et al. as applied to claim 13 above, further in view of officially noticed prior art.

Noland et al. shows the device substantially as claimed, including: said bi-directional torque producing mechanism comprises an adjustable angle guide arm 42 and weight arm unit 43 which further comprises an axis shaft 41 that is journaled in a bearing housing 37; said guide arm having a hub 47 with a bore that is journaled on one end of said shaft and fixed there by a key 48 and set screws 49 that engage said shaft 41 to produce a solid unit; a second hub 71 also having a bore to serve as a bearing to provide a rotational relationship between said shaft and a weight arm 43; said weight arm further comprising a pop pin 81 mounted in its upper end and a telescoping weight prong member 93 on its lower end; a selector dial plate 72 having a plurality of holes 82 circumferentially drilled on the periphery (Fig. 4) to receive the bore of said pop pin (Fig. 5) and fixed (74) to said shaft on the other side of said bearing housing between said bearing housing of said hub and said weight arm (Fig. 5); said guide arm, said shaft and said selector plate serving as

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a solid unit that has a rotatable relationship with said weight arm; said rotatable relationship is produced as claimed.

Noland et al. fails to show that the guide arm hub is fixed to the shaft by a role pin that is press fit in a hole in the hub that is lined up with a hole in the shaft or bushings press fit into the first or second hub. However, the examiner takes Official Notice that such were notoriously old and well known mechanical expedients at the time of invention. It would have been obvious to the artisan to modify Noland et al. by using the claimed mechanisms since the artisan would expect such well known expedients to work equally as well as the disclosed mechanisms.

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ellis (4,398,713) in view of McLaughlin et al. as applied to claim 32 above.

McLaughlin et al. fail to teach performance of a prone back extension using their apparatus.

However, Ellis shows an analogous method for performing a prone back extension (Fig. 8) including: providing a base 12; providing a plurality of vertical supports 16, 25 attached to said base; providing one or more body supports 18 attached to one or more vertical supports; positioning said body of a user in a prone position (Fig. 8) on said body support wherein one part (the torso) of said body is freely movable, a second part (the hip) of said body is a pivotable reference part and a third part (the legs) of said body is anchored and supported 36, 38; wherein the movable part of said body is acted upon by gravity; wherein said pivotal reference part of said

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body consists of the middle area of a person between the rib cage and the knees (Fig. 8); and wherein said anchored and supported part of said body sometimes may provide combination movements with said movable part of said body.

It would have been obvious to the artisan to modify Ellis by providing a bi-directional torque producing mechanism having a guide arm 31 pivotally mounted to one said vertical support 28 and providing a force production mechanism 45 connected to said bi-directional torque producing mechanism as taught by McLaughlin et al. since McLaughlin et al. teach that such mechanism could be advantageously applied to other exercises in which body parts are pivoted about body joints (col. 6, lines 11-19), e.g., the prone back extension taught by Ellis.

### *Response to Arguments*

12. In response to applicant's arguments regarding the differences between McLaughlin and the instant device, it is noted that the differences which Applicant cites (response, pp. 16-17 and 19) are nowhere reflected in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

13. Applicant's further arguments with respect to the new claims have been considered but are moot in view of the new grounds of rejection.

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*Pertinent Art*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schnell (4,834,396) and Fulks (4,854,578) show analogous back extension apparatus.

*Final Rejection*

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to John Mulcahy.

Telephone (703)308-3134

Facsimile (703)308-0758

John Mulcahy  
April 22, 1999

  
**JOHN MULCAHY**  
**PRIMARY EXAMINER**

<b>Notice of References Cited</b>				Application No. <i>08/063, 048</i>		Applicant(s) <i>MONTE</i>	
				Examiner <i>MVLACHY, J.</i>		Group Art Unit <i>3764</i>	Page <i>1</i> of <i>1</i>
U.S. PATENT DOCUMENTS							
*	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS		
A	<i>4398713</i>	<i>8/1083</i>	<i>ELLIS</i>	<i>402</i>	<i>145</i>		
B	<i>4834396</i>	<i>5/1083</i>	<i>SONNELL</i>	<i>402</i>	<i>97</i>		
C	<i>4054578</i>	<i>8/1083</i>	<i>FULKS</i>	<i>402</i>	<i>97</i>		
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\* A copy of this reference is not being furnished with this Office action.  
(See Manual of Patent Examining Procedure, Section 707.05(a).)

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FACSIMILE TRANSMISSION COVER PAGE

DATE: October 19, 1999  
TO: John Mulcahy  
FROM: Cristina M. Offenbergl, Esquire  
RE: Application of Jon Monti  
08/869,048

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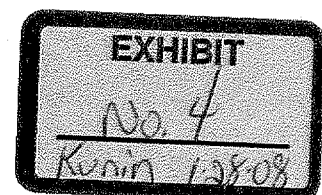
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FACSIMILE NO.: 703/308-0758

MESSAGE:

Enclosed for your review is claim 13 and 32 redrafted to overcome the rejections of Noland and McLaughlin. I believe, as now claimed, there is no anticipation of Monti from Noland in claim 13 and no anticipation of McLaughlin in claim 32. You stated that you would give an advisory opinion as to whether the claims as now drafted overcome the anticipation rejections. Please so advise. Should you need further explanation, Mr. Monti and I are available for a conference call at your convenience. The expiration of the extension for filing the amendment is October 29, 1999 so we do request your immediate attention. Thank you.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

APPLICATION NUMBER: 08/869,048

APPLICATION FILED: 06/04/97

APPLICANT: Jonathan Monti

TITLE: Device and Method for Exercise and Rehabilitation

EXAMINER/GAU: John Mulcahy/3764

October 19, 1999

AMENDMENT

Assistant Commissioner for Patents

Washington, District of Columbia 20231

Sir:

This is a response to the Office Action mailed March 29, 1999, having a response date July 29, 1999. The following amendments and remarks are respectfully submitted.

IN THE DRAWINGS: Corrections in the drawings are noted and corrected and formal drawings will be submitted after allowance.

IN THE SPECIFICATION:

The following corrections in the specification are requested:

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In the Claims amend claims 13 and 32 as follows:

What is claimed is

13. An exercise and rehabilitation device for body weight resistive exercises comprising  
a supporting means to support a user off the ground a sufficient distance to allow the user  
to perform gross body movements in a range of motion;  
wherein said supporting means support the torso or legs of said user;  
a bi-directional torque production mechanism providing assistance or resistance to the  
user having a guide arm with a rotational relationship to said bi-directional torque production

mechanism and pivotally mounted on said supporting means;

a force production mechanism connected to said bi-directional torque production mechanism which counterbalances or adds resistance to the effect of gravity and offsets or adds to a portion of a user's weight;

wherein said guide arm pushes a user's body during assistive exercise and wherein the user's body pulls upon said guide arm during resistive exercise.

32. A method for body weight resistive exercising and rehabilitating comprising the steps of providing a supporting means to support a user off the ground a sufficient distance to allow a user to perform gross body movements in a range of motion;

wherein said supporting means supports the body of said user to maintain a desired natural body position while performing an exercise;

providing a bi-directional torque production mechanism having a guide arm with a rotational relationship to said bi-directional torque production mechanism and pivotally mounted on said supporting means;

providing a force production mechanism connected to said bi-directional torque production mechanism;

wherein said force production mechanism counterbalances the effect of gravity and offsets a portion of the user's weight thereby creating a buoyancy effect;

wherein said force production mechanism adds resistance to the effect of gravity and adds to a user's weight;

positioning said body of the user in a prone, supine, inclined or vertical position on said supporting means in a position that the body naturally tends toward when performing a body weight resistive exercise unassisted wherein one part of said body is freely movable, a second part of said body is a pivotable reference part and a third part of said body is anchored or supported;

wherein the movable part of said body is pushed by the guide arm during assistive exercise;

wherein the movable part of said body pulls upon said guide arm during resistive exercise;

wherein the moveable part of said body performs motions from a position that would be difficult to be achieved if unassisted;

wherein said pivotable reference part of said body consists of the middle area of a person between the rib cage and the knees;

whereby the gross body movement of the body during exercise are governed by the specific forces, specific physiology and specific mechanics to the natural movements of the body when effected by gravity.

33. A method as claimed in claim 39 wherein the exercise to be performed is a prone back extension.

## REMARKS

As the claims are now rewritten for the subject invention:

Noland's device does not anticipate Monti's device due to the following differences in the devices:

Noland's exercise is conducted by the user pushing against the leg arm which is resisted by the weight arm to achieve a leg extension. Monti's exercise is conducted by the guide arm pushing the user during assistive exercise and where the body pulls upon the guide arm during resistive exercise. Noland's weight can be set to counterbalance the user's leg whereas Monti's weight counterbalances the entire lower body or entire upper body thereby working comprehensive muscle groups rather than an isolated leg muscle. Noland's claim is for a single joint leg exercise machine. Monti's invention is for comprehensive multi-joint, gross body weight resistive exercises.

In response to the rejection of claim 32 as being anticipated by McLaughlin, Monti has now redefined the claim and overcomes this rejection. Monti now has a means for supporting the user in which the supporting means supports either the torso or legs of the user to allow the user to maintain a natural body position - McLaughlin's user starts in a declined position which is not a natural position when performing a sit up if unassisted on the floor;

Monti's invention provides a bi-directional torque producing mechanism having a guide arm pivotally mounted to the supporting means. McLaughlin has a radiating weight arm(31), with a harness (48) which serves as its guide for the body, and the harness is not pivotally mounted to a vertical support but is attached to the radiating weight arm;

McLaughlin does not discuss a the bi-directional torque or force producing mechanism - the force production mechanism referred to by the examiner are weights and McLaughlin requires at least two weights on two arms to perform an exercise - one on the radiating weight arm and one on the rear weight arm. The assistance provided by McLaughlin is by the assistive weight arm 37 which only provides assistance through the first part of the sit up (about 15 degrees of motion) from the decline to horizontal position. Monti only has one location for the force production mechanism i.e. connected to the bi-direction torque producing mechanism. As Monti is now defined, the force production mechanism counterbalances the effect of gravity to offset a portion of a user's weight during exercise. Monti's exercise device provides assistance throughout the entire range of motion.

McLaughlin's user has a chest-engaging means so the chest of the user engaged with the harness to move the first arm thereby the user is pushing against the harness and has to push with his abdominal muscles to perform the sit up. In Monti's invention, during assistive exercise, the guide arm pushes the user and during resistive exercise, the user pulls upon the guide which is characterized by specific forces, specific physiology and specific mechanics of the muscles.

Other differences include: McLaughlin's machine is for sit ups. McLaughlin has two radial arms, one rear weight arm, and a harness necessary to perform the exercise whereas Monti has only a guide arm, the bi-directional torque producing mechanism and the force production mechanism to perform the exercise. Also, McLaughlin needs a third radiating arm to provide assistive weight to the exercise (and it is only a limited area of assistance) whereas Monti's device

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can provide assistive weight exercises through the entire range of motion of the exercise. Monti's devices provides for both resistive and assistive exercise in the same device with only the guide arm; the bi-directional torque producing mechanism and the force production mechanism. McLaughlin's device has a plurality of force production mechanisms (45 -weights) which are attached to the radial arms, weight arm and assistive weight arm rather than in one location.

McLaughlin allows for the force production mechanisms (45 weights) to be selectively attached to the weight arms at selected varying distances from the pivot axis. Monti's device's force production mechanism is located near the pivotable reference point of the user. McLaughlin's guide arm is the harness 48 which is attached between two radiating arms and not pivotally mounted.

Simply stated, Monti's method of exercising is one in which the user is supported to allow the user to maintain a natural body position during the exercise by offsetting a portion of the user's weight with the bi-directional torque producing mechanism and the gross body movements of the body during exercise are specific forces, specific physiology and specific mechanics.

For all the reasons advanced above, Applicant respectfully submits that the application is in condition for allowance and that action is earnestly solicited.

Respectfully submitted,

Jonathon Monti

By his attorney,

Cristina M. Offenberg, Esq.

Certificate of Mailing: I certify that on the dated below this document and referenced attachments, if any, will be deposited with the U.S. Postal Service as first class mail in an envelope addressed to: "Box Non-Fee Amendments, Assistance Commissioner for Patents, Washington, D.C. 20231".

Date: \_\_\_\_\_

\_\_\_\_\_  
Cristina M. Offenberg, Esq.